THERMAL PRINTER DRIVER CARD User Manual – Rev.A4

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Revision History

Version	Date	Author	Change Description
A4	06-May-2015	Yusup Khan	Document updated

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1. PART NUMBER DESCRIPTION:

1.1 MODULE (PRINTER DRIVER CARD) – CS-MTPR-Cxy

Cxy– Configuration number

C: (Module Configuration)	x: (Major Feature Configuration)	y: (Minor Feature Configuration)
A – Driver card type 1B	A – 2 Inch	1 – Serial(TTL)

Driver card type 1B (70mm x 20mm): Without Battery Support

C: (Module Configuration)	x: (Major Feature Configuration)	y: (Minor Feature Configuration)
B – Driver card type 2	A – 2 Inch	1 – Serial(TTL)
	B – 3 Inch	2 – USB
	C – 2 Inch + Mechanism	3 – BLE
	D – 3 Inch+ Mechanism	4 – BT
	E – 2 Inch + Cutter	5 – WiFi (802.11b/g/n)
	F – 3 Inch + Cutter	
	G – 2 Inch + Cutter+Mechanism	
	H – 3 Inch + Cutter+Mechanism	

Driver card type 2 (70mm x 35mm): With Battery Support

2. DRIVER CARD FEATURES:

The thermal printer interface card has the following features

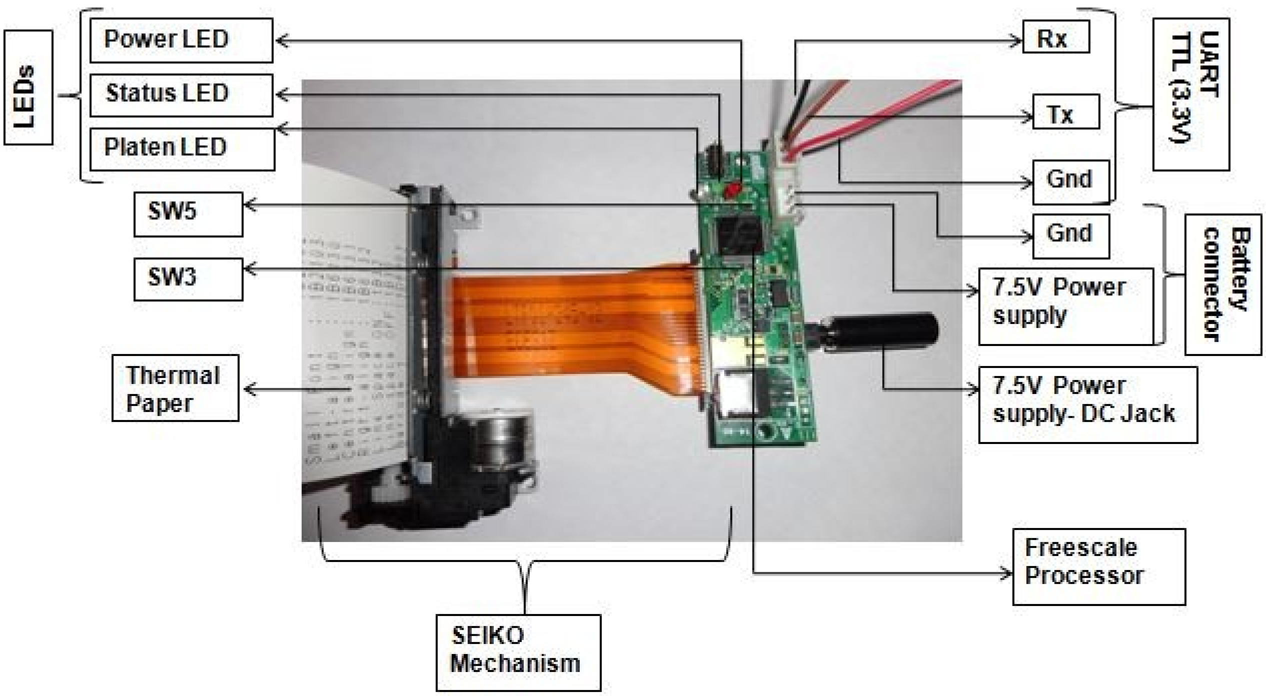
1. Interface: UART(TTL level-3.3V)/BT/BLE/WiFi.
2. Baud rate can be configured. (Default is 9600)
3. Barcode printing.
4. Font support. (English – Verdana, Courier)
5. Regional language (Marathi, Hindi).
6. Text print support.
7. Image/Logo print.
8. LED indication for Paper and platen detect options.
9. Power: 7.5V-9V, 3A. Powered via Adapter/Battery.
10. Supported SEIKO Printers:
    i. LTP01-245 - 2Inch
    ii. CAPD245 - 2Inch with Cutter
    iii. LTPD345 - 3Inch
    iv. CAPD345 - 3Inch with Cutter

Kit Deliverables

1. Thermal Printer Interface Card.
2. LTP01-245/CAPD245/LTPD345/CAPD345(SEIKO)(optional)
3. 2 inch/3 inch Paper Roll – 1 No

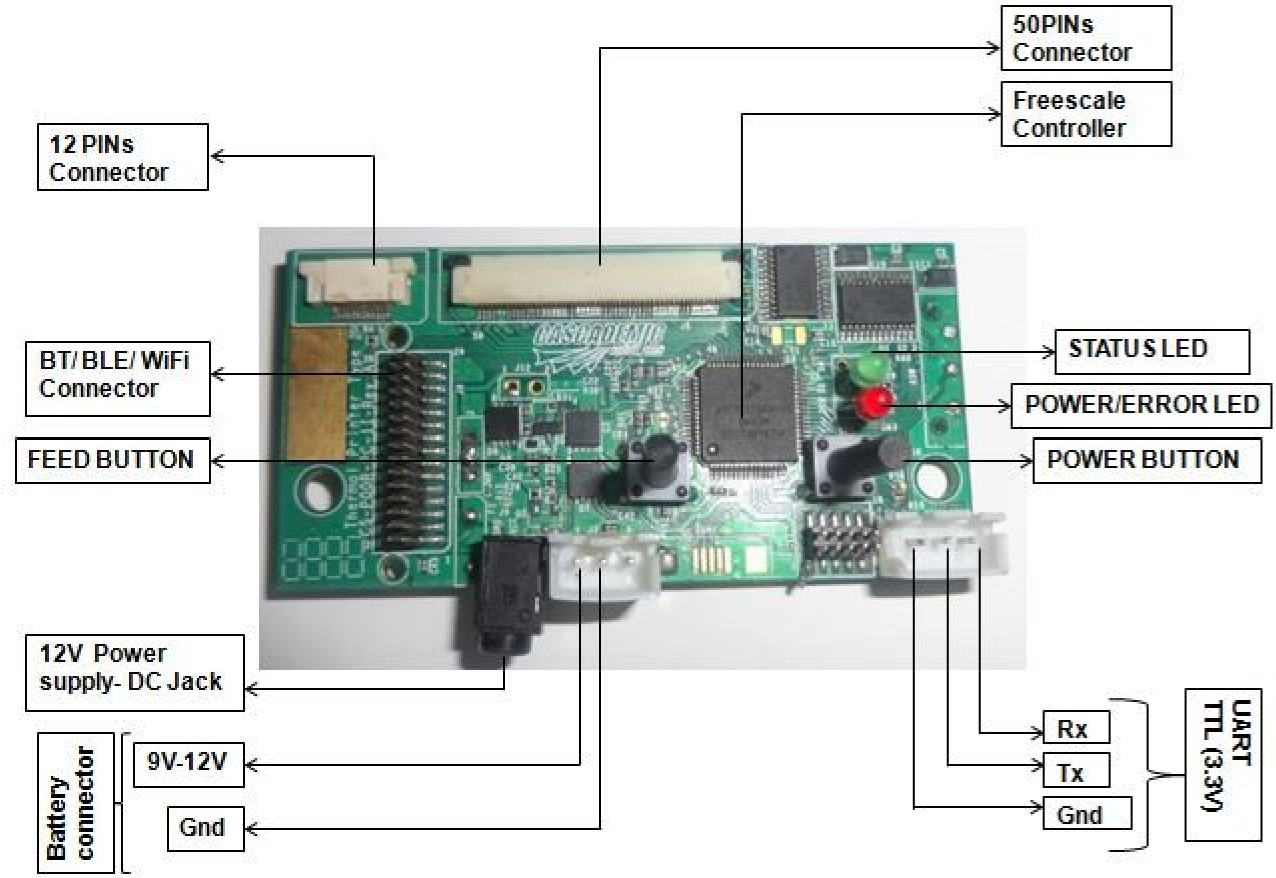
3. THERMAL PRINTER DRIVER CARD:

3.1 CS-MTPR-AA1 (Type 1B)

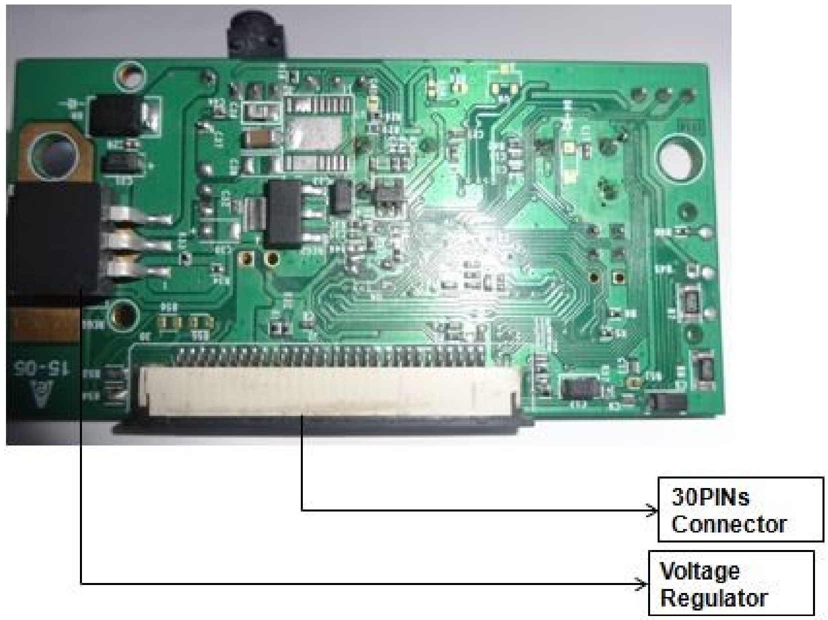


3.2 CS-MTPR-Bxy (Type 2)

Top View:



Bottom View:



3.4 POWER SUPPLY:

The Power supply to be used has to be (7.5V-9V / 3A) through external adapter. Also separate slot is provided for battery power (7.5V-9V / 3A). Power adapter is positive polarity.



3.5 LED INDICATION:

3.5.1 TYPE 1B - PRINTER DRIVER CARD

Board consists of 3 LEDs as follows:

1. **POWER ON INDICATION LED:** This LED will turn ON, when 7.5V / 3A power is applied to the Thermal Printer Card.
2. **STATUS LED :** This LED will turn ON while Printing.
3. **PLATEN DETECTION LED :** This LED will turn ON when Platen is not connected to the printer.

3.5.2 TYPE 2 - PRINTER DRIVER CARD

Board consists of 2 LEDs as follows:

1. **POWER / ERROR INDICATION LED:** This LED will turn ON , when 7.5V / 3A power is applied to the Thermal Printer Card and will blink in case of an error.
2. **STATUS LED :** This LED will turn ON while Printing.

3.6 PRINTER HEAD MECHANISM

3.6.1 CS-STPR-CAy (2 INCH SEIKO HEAD)



Model		LTP01-245-12
Auto Cutter		No
Characters per line		24/32/48
Maximum print speed (mm/s)		75
Print Width		48
Paper width		58
Out of Paper Indication		Yes
Platen Position Indication		Yes
Power Supply	Maximum (V)	4.75
	Minimum (V)	9.5

3.6.2 CS-STPR-BBy (3 INCH SEIKO HEAD)



Model		LTPD345
Auto Cutter		No
Characters per line		36/48/72
Maximum print speed (mm/s)		80
Print Width		72
Paper width		80
Out of Paper Indication		Yes
Platen Position Indication		Yes
Power Supply	Maximum (V)	4.75
	Minimum (V)	9.5

3.6.3 CS-STPR-BEy (2 INCH SEIKO HEAD WITH AUTO-CUTTER)



Model		CAPD245
Auto Cutter		Yes
Characters per line		24/32/48
Maximum print speed (mm/s)		100
Print Width		48
Paper width		58
Out of Paper Indication		Yes
Platen Position Indication		Yes
Power Supply	Maximum (V)	4.75
	Minimum (V)	9.5

3.6.4 CS-STPR-BFy (3 INCH SEIKO HEAD WITH AUTO CUTTER)



Model		CAPD345
Auto Cutter		Yes
Characters per line		36/48/72
Maximum print speed (mm/s)		80
Print Width		72
Paper width		80
Out of Paper Indication		Yes
Platen Position Indication		Yes
Power Supply	Maximum (V)	6.5
	Minimum (V)	9.5

3.7 INTERFACE SPECIFICATION:

3.7.1. CS-STPR-Cx1 (Serial Interface):

COM Port Settings:

1. Bits per Second	:	9600
2. Data Bits	:	8
3. Parity	:	None
4. Stop Bits	:	1
5. Flow Control	:	None

3.7.2. CS-STPR-Bx4 (Bluetooth Interface):

1. Name of the Blue-tooth device is “CAS BT PRINTER” and Password is “1234”.
2. Searching won’t stop until the device is found. Configure the connection between the master and slave(CAS BT PRINTER). Master can send data to slave and request from slave as well.
3. You are allowed to transmit and receive data through Blue Term+

Bluetooth Specification:

1. Blue-tooth protocol	:	Blue-tooth Specification v2.0 + EDR
2. Frequency	:	2.4GHz ISM band
3. Profiles	:	Blue-tooth serial port
4. Power supply	:	Built-in Chip antenna power supply + 3.3VDC 50mA
5. Dimension	:	26.9mm x 13mm x 2.2 mm

3.7.3. CS-STPR-Bx5 (Wi-Fi Interface):

1. Name of the Wi-Fi device is “CAS Wi-Fi PRINTER” and Password is “12345678”.
2. Searching won’t stop until the device is found. Configure the connection between the master and slave device (CAS Wi-Fi PRINTER). Master can send data to slave and request from slave as well.
3. You are allowed to transmit and receive data through TCP Client.
4. IP Settings : 192.168.16.254
5. Port Settings : 8080

3.8 PROCESS OF LOADING THE THERMAL PAPER

1. Remove the platen slowly.
2. Replace the paper and Load the platen back to its position.
3. Make sure that the platen is placed properly. If not placed properly it is indicated by LED .

4. COMMAND SPECIFICATIONS

4.1. SELECT FONT TYPE:

[Command] : **$1Bwxyz<Space>**

[Range] : 0 ≤ w ≤ 1

x = 'N' or 'B'

0 ≤ y ≤ 2

0 ≤ z ≤ 7

Font (w)	**0**	Courier font
	1	Calibri font
Style (x)	**N**	Normal
	B	Bold
Characters per line (y)	**0**	24
	1	32
	2	48
Size (z)	**0**	Width=1,Height=1
	1	Width=1,Height=2
	2	Width=1,Height=3
	3	Width=1,Height=4
	4	Width=2,Height=1
	5	Width=2,Height=2
	6	Width=2,Height=3
	7	Width=2,Height=4

Example:

If we want bold courier font at 32 chars per line and the height at 3 and width at 1, the command is **$1B0B12**

4.2. SELECT LINE ALIGNMENT:

[Command]	:	**$1B61mn**
[Range]	:	m=30 for Left alignment m=31 for Center alignment m=32 for Right alignment
[Range]	:	n < Characters per line. (Range between from 0 to Characters per line)
[Description]	:	Selects the type of alignment using m. Characters to align = n. n should be less than characters per line.
$1B6130n	-	Left alignment
$1B6131n	-	Center alignment
$1B6132n	-	Right alignment
[Notes]	:	In alignment, if you want to change font, you can send font command followed by alignment command.

Sample Text

$1B613012<Space>ABCDEFGHIJKLMNOPQRSTUVWXYZ

Here m = 30 and n = 12

Sample Text

$1B613108<Space>ABCDEFGHIJKLMNOPQRSTUVWXYZ

Here m = 31 and n = 08

Sample Text

$1B613205<Space>ABCDEFGHIJKLMNOPQRSTUVWXYZ

Here m = 32 and n = 05

4.3. LINE SPACING:

Line Space On:

[Command] : **$1B32**

Line Space Off:

[Command] : **$1B30**

[Range] : None

[Description] : **$1B32** Prints the data with line space. This command setting is effective until feeding **$1B30**, reset or Power-off.

Sample Text

$1B32<Space>ABCDEFGHIJKLMNOPQRSTUVWXYZABCDEFGHIJKLMNOPQRSTUVWXYZABCDEFGHIJKLMNOPQR
STUVWXYZABCDEFGHIJKLMNOPQRSTUVWXYZ

Sample Text

$1B30<Space>ABCDEFGHIJKLMNOPQRSTUVWXYZABCDEFGHIJKLMNOPQRSTUVWXYZABCDEFGHIJKLMNOPQR
STUVWXYZABCDEFGHIJKLMNOPQRSTUVWXYZ

4.4. PRINT AND LINE FEED:

[Command : **$0A**

[Range] : None

[Description] : Prints the data and feed one line ('\n'), based on current line spacing.

Sample Text

ABCDEFGH$0A<Space>IJKLMNOPQRS$0A<Space>TUVWXYZ

4.5. TEST PRINT:

[Command] : **$1D41**

[Description] : Executes the test print.

4.6. TO CHANGE BAUD RATE:

[Command] : **$1D44**

[Range] : 2400 to 230400. **Default baud rate is 9600**

[Description] : Sets the baud rate for data communication.

[Notes] : Once new baud rate is set, similar configuration has to be made in Hyper Terminal.

E.g. To configure baud rate 57600 (use command **$1D44 57600**)

4.7. PRINT FEED N LINES:

[Command] : **$14$0$n**

[Range] : 00 ≤ **n** ≤ 99 (n in millimeter)

[Description] : Prints data and feed "n" millimeter line spacing.

[Notes] : This command is used to feed a specific line without changing the line spacing set by other commands.

4.8. PRINT REVERSE FEED N LINES:

[Command] : **$14$1$n**

[Range] : 00 ≤ **n** ≤ 99 (n in millimeter)

[Description] : Prints data and feed "n" millimeter line spacing in reverse direction.

[Notes] : This command is used to feed a specific line without changing the line spacing set by other commands.

Sample Text

ABCDEFGHIJKLMNOPQRSTUVWX**$14$0$08**<Space>YZABCDEFGHIJKLMNOPQRSTUV**$14$1$50**<Space>WXYZAB CDEFGHIJKLMNOPQRST

Here **08** = 8mm and **50** = 50mm line spacing

4.9. PRINT BAR CODE:

[Command]	:	**$1D68m**<Space>**d1…..d12**
[Range]	:	01 ≤ m ≤ 03
[Description]	:	Prints the bar code using the bar code height in m.
		‘d’ specifies the character code data of the bar code to be printed.
		The length of data ‘d’ should be 12 digits only.
[Notes]	:	Bar Code will be printed in EAN-13 format. Other formats will be implemented based on customer request.

Sample Text

$1D6801<Space>890244221790

Here m= 01

Print Sample

Sample Text

$1D6802<Space>890244221790

Here m= 02

Print Sample

8 902442 217904

Sample Text

$1D6803<Space>890244221790

Here m= 03

Print Sample

8 902442 217904

4.10. HINDI PRINT:

[Command] : **$1551mn**<Space>

[Range] : 01 ≤ n ≤ 04 (n for Height of font)

m=0 for Normal font

m=1 for Bold font

[Description] : Print normal Hindi font using **$15510n** and print bold Hindi font using $**15511n**

Characters Table

0000	0001	0002	0003	0004	0005	0006	0007	0008	0009	000A	000B	000C	000D	000E	000F	0010	0011	0012	0013	0014	0015	0016	0017	0018	0019	001A	001B	001C	001D
	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/	0	1	2	3	4	5	6	7	8	9	:	;	<	=
001E	001F	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	002A	002B	002C	002D	002E	002F	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	003A	003B
>	?	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	[
003C	003D	003E	003F	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	004A	004B	004C	004D	004E	004F	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059
\	]	^	_	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
005A	005B	005C	005D	005E	005F	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	006A	006B	006C	006D	006E	006F	0070	0071	0072	0073	0074	0075	0076	0077
z	{	|	}	~	०	१	२	३	४	५	६	७	८	९	॰	ॲ	अ	आ	इ	ई	उ	ऊ	ऋ	ऌ	ऍ	ऎ	ए	ऐ	ऑ
0078	0079	007A	007B	007C	007D	007E	007F	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	008A	008B	008C	008D	008E	008F	0090	0091	0092	0093	0094	0095
ऒ	ओ	औ	ॠ	ॡ	क	ख	ग	घ	ङ	च	छ	ज	झ	ञ	ट	ठ	ड	ढ	ण	त	थ	द	ध	न	ऩ	प	फ	ब	भ
0096	0097	0098	0099	009A	009B	009C	009D	009E	009F	00A0	00A1	00A2	00A3	00A4	00A5	00A6	00A7	00A8	00A9	00AA	00AB	00AC	00AD	00AE	00AF	00B0	00B1	00B2	00B3
म	य	र	ऱ	ल	ळ	ऴ	व	श	ष	स	ह	क़	ख़	ग़	ज़	ड़	ढ़	फ़	य़	क्ष	ज्ञ	ट्र	ट्ट	ट्ठ	ठ्र	ठ्ठ	छ्र	ण्र	त्र
00B4	00B5	00B6	00B7	00B8	00B9	00BA	00BB	00BC	00BD	00BE	00BF	00C0	00C1	00C2	00C3	00C4	00C5	00C6	00C7	00C8	00C9	00CA	00CB	00CC	00CD	00CE	00CF	00D0	00D1
श्र	दृ	द्र	हृ	ड्ढ	द्म	द्ध	ध्र	न्र	प्र	फ्र	ब्र	भ्र	म्र	य्र	ल्र	व्र	श्र	ष्र	स्र	ह्र	क्र	ख्र	ग्र	घ्र	ङ्र	च्र	ज्र	झ्र	ञ्र
00D2	00D3	00D4	00D5	00D6	00D7	00D8	00D9	00DA	00DB	00DC	00DD	00DE	00DF	00E0	00E1	00E2	00E3	00E4	00E5	00E6	00E7	00E8	00E9	00EA	00EB	00EC	00ED	00EE	00EF
रु	रू	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
00F0	00F1	00F2	00F3	00F4	00F5	00F6	00F7	00F8	00F9	00FA	00FB	00FC	00FD	00FE	00FF	0100	0101	0102	0103	0104	0105	0106	0107	0108	0109	010A	010B	010C	010D
S	।	॥	:	T	T	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
010E	010F	0110	0111	0112	0113	0114	0115	0116	0117	0118	0119	011A	011B	011C	011D	011E	011F	0120	0121	0122	0123	0124	0125	0126	0127	0128	0129	012A	012B
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
012C	012D	012E	012F	0130	0131	0132	0133	0134	0135	0136	0137	0138	0139	013A	013B	013C	013D	013E	013F	0140	0141	0142	0143	0144	0145	0146	0147	0148	0149
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]									

Hindi Font Table

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Commands that need to be sent shall be based on the Hindi font table given above. For e.g:

अ →6B

क →7D

का→7D,F5

की→7D,F5,13E

कि→F4,7D,13B

कु→7D,11C

को→7D,F5,100

कँ→7D,F7

अ →6B

6B is a value as required to print as given in the above image

To print above character give command $1551mn<Space>6B

This letter (का) requires combination of two values and this letter (की) requires combination of three values. Each Unicode separated by a comma (,). For e.g:

$1551mn<Space>F4,7D,13B,

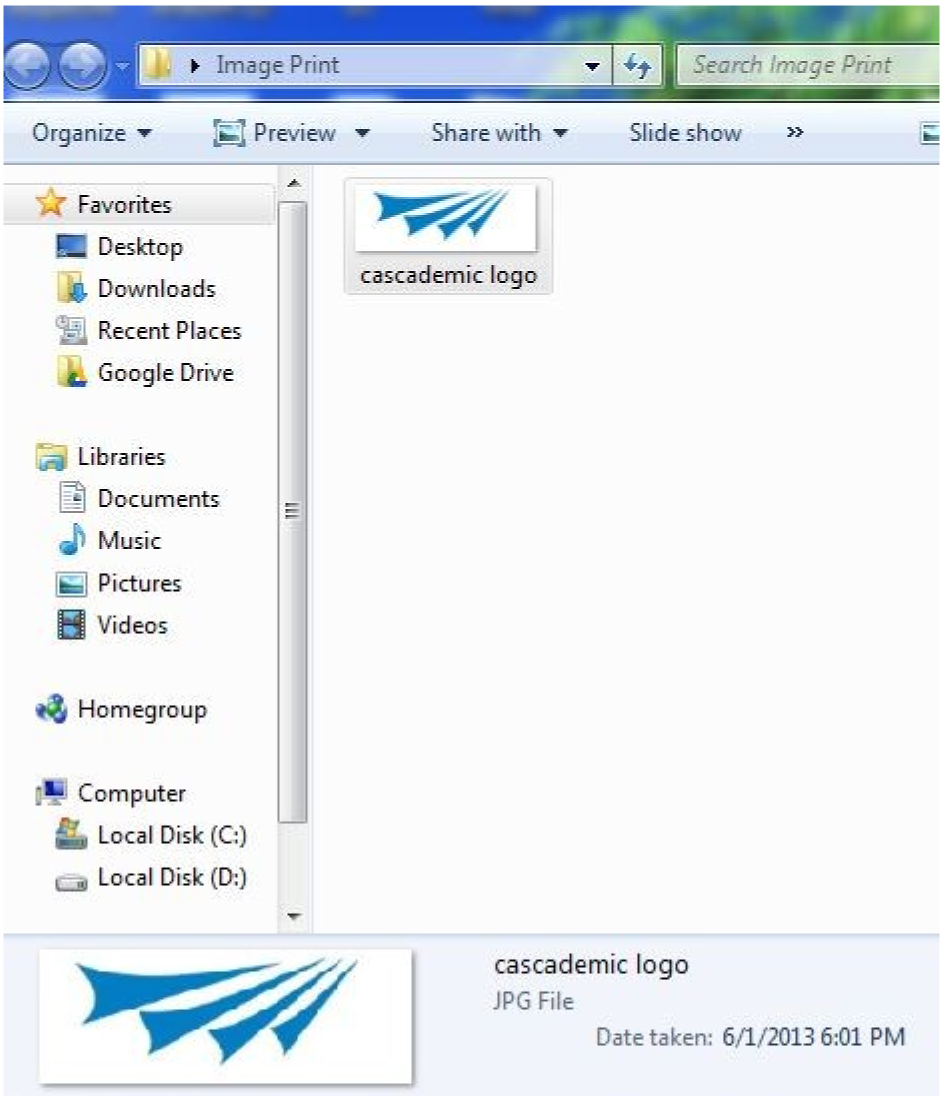
You can send various combinations based on Hindi text that you want to print.

Note: Make sure you have sent the Hindi Font selection command before sending the data and also you can print English with Hindi using this command ($1550<Space>English). Bar code and line alignment commands are not supported in Hindi print. Updated Hindi Font table attached as a separate document. Refer the document for Hindi Print.

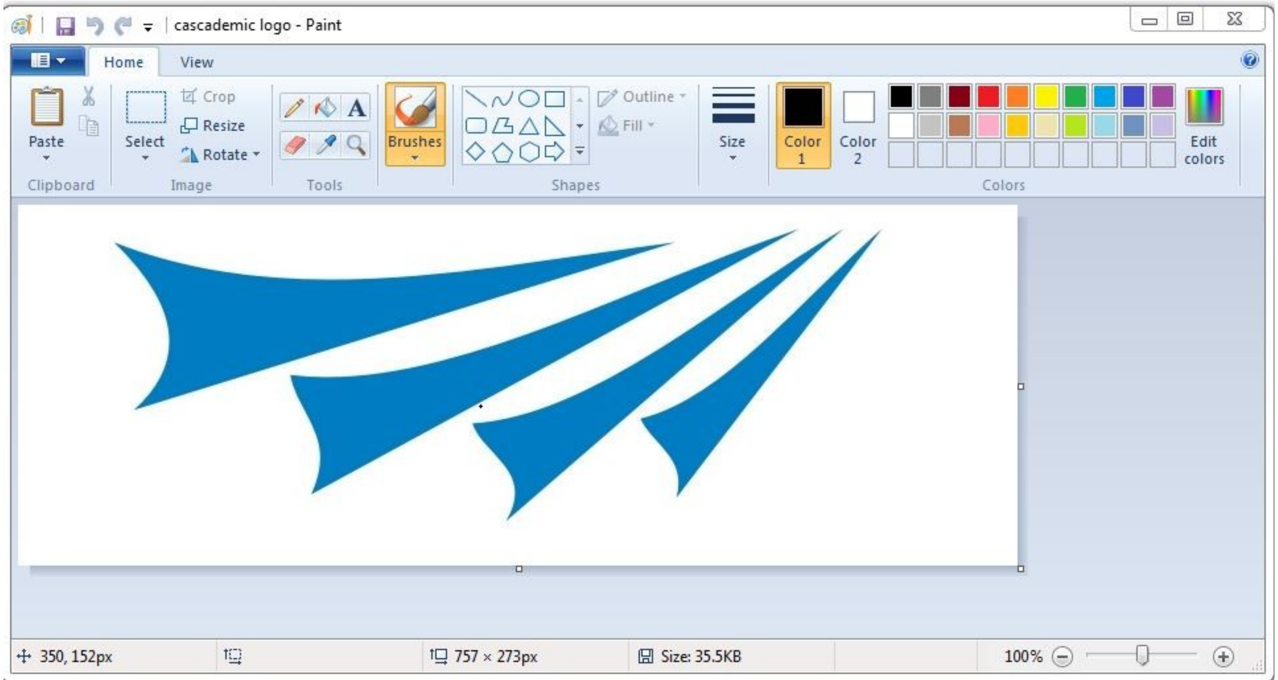
4.11. TO PRINT LOGO:

PROCEDURE TO CONVERT A PICTURE TO PRINT ON 2" THERMAL PRINTER:

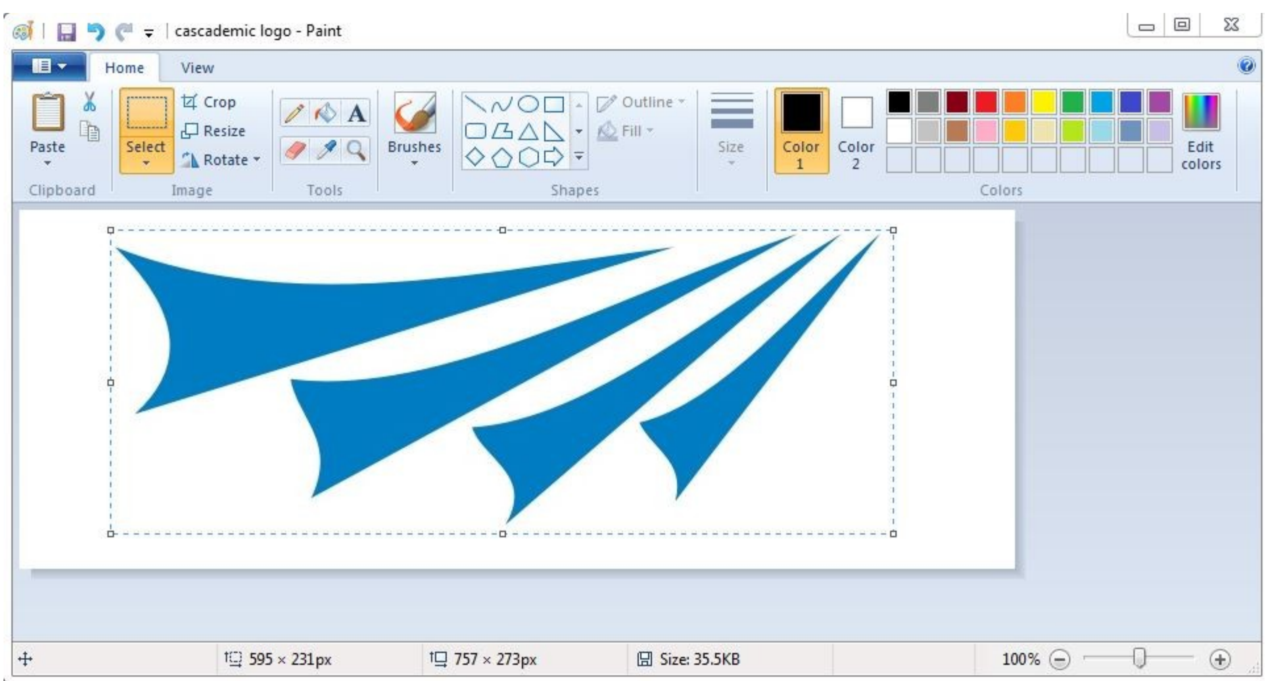
Step 1) Select the image that you would need to print



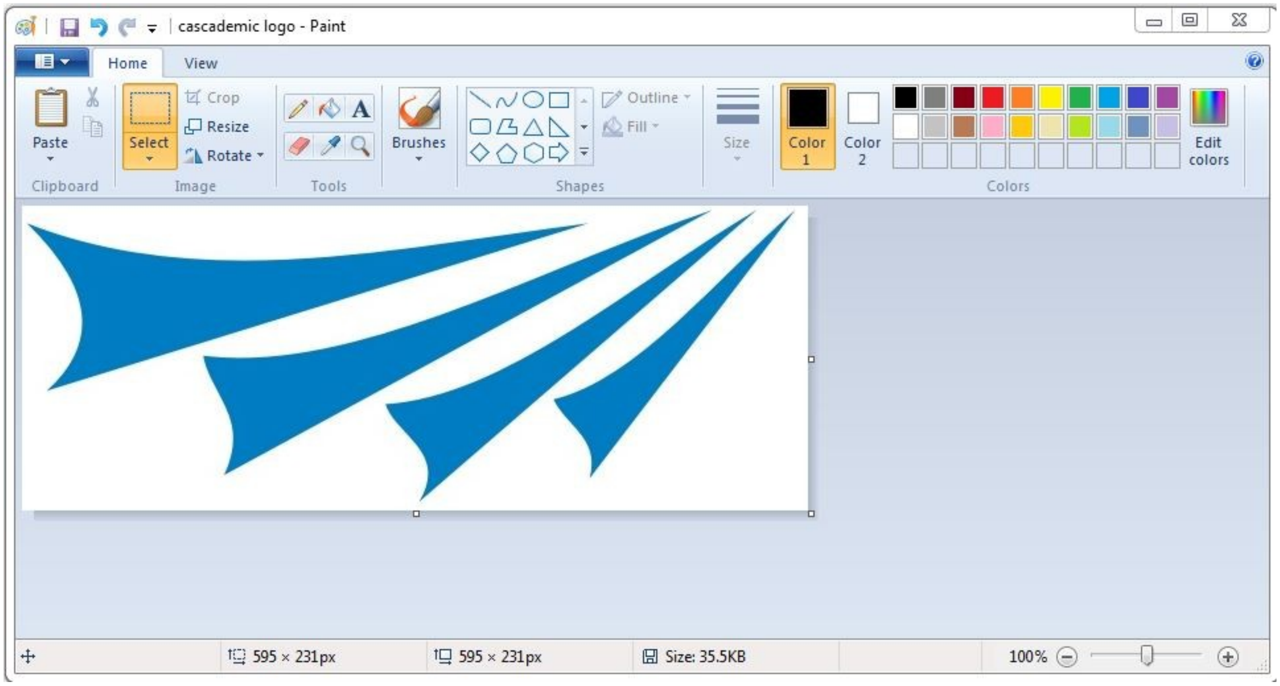
Step 2) Right click and open with paint



Step 3) Select and crop the exact image that you would need to print without extra white space



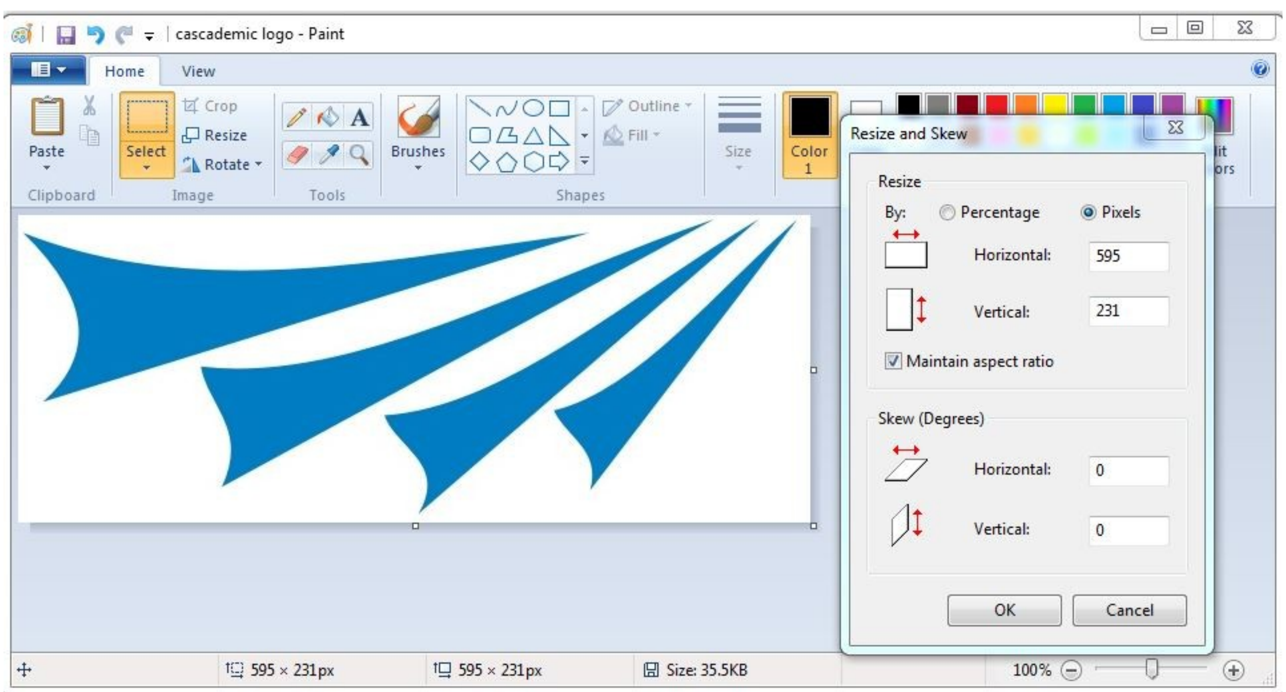
Step 4) Image after cropping



Step 5)

i. Click Resize option

ii. Under Resize, Select Pixels



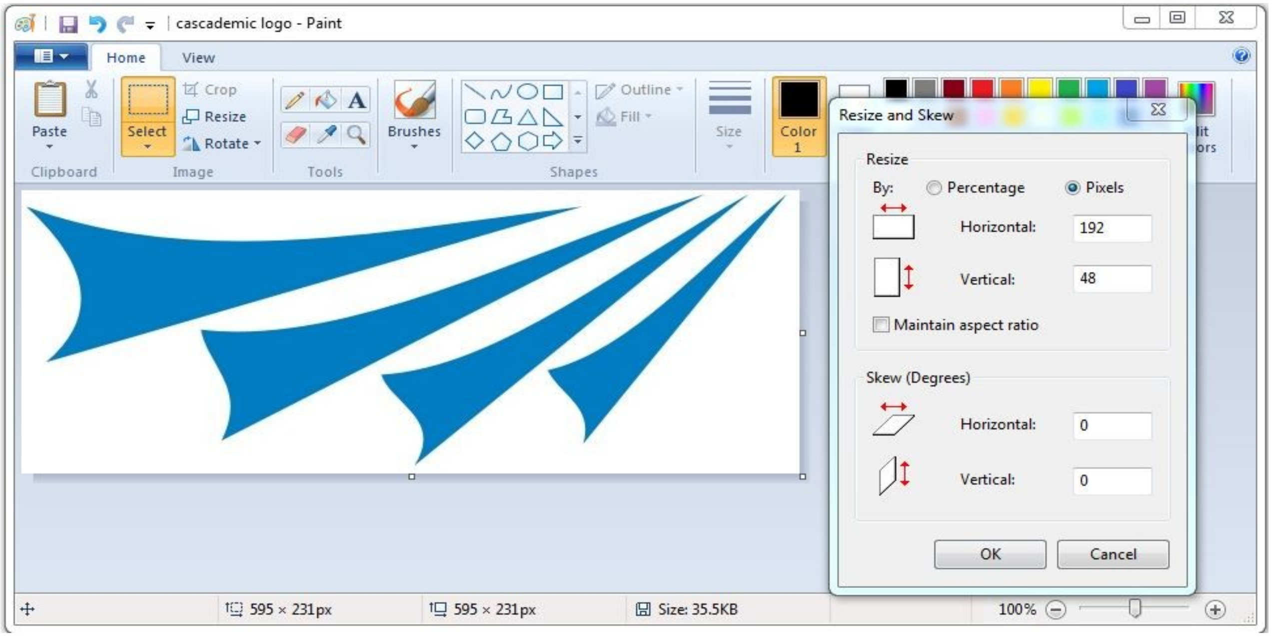
Step 6)

i. Under Resize and Skew, Uncheck Maintain aspect ratio

ii. Reduce the Image size by using stretch/skew option

iii. Image width (Horizontal) should be equal to 192 pixels

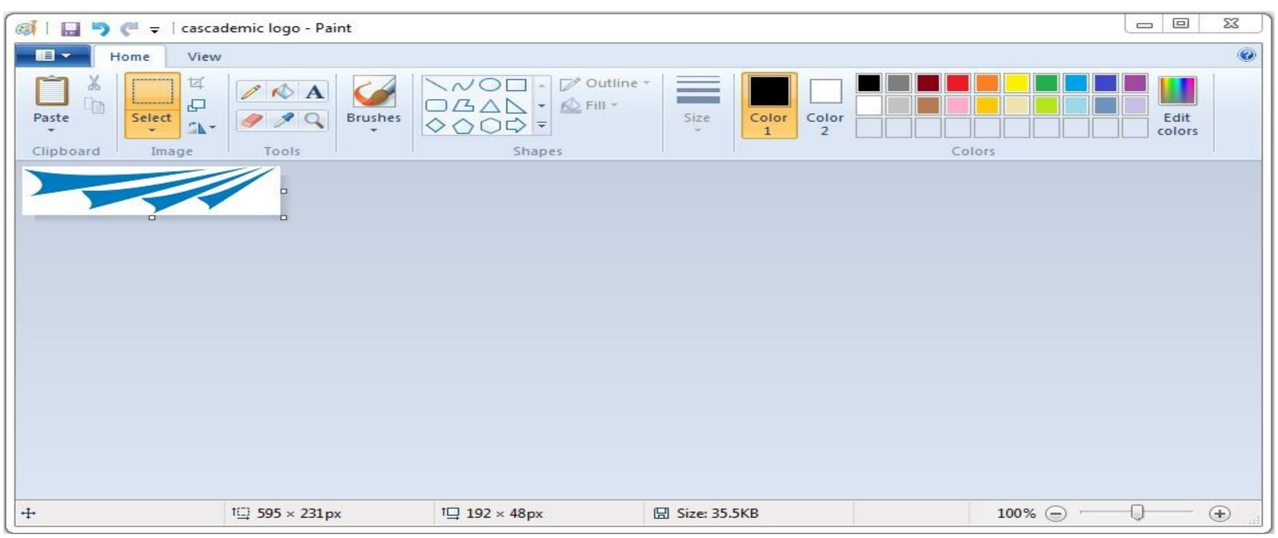
iv. Image Height (Vertical) should be less than or equal to 48 pixels



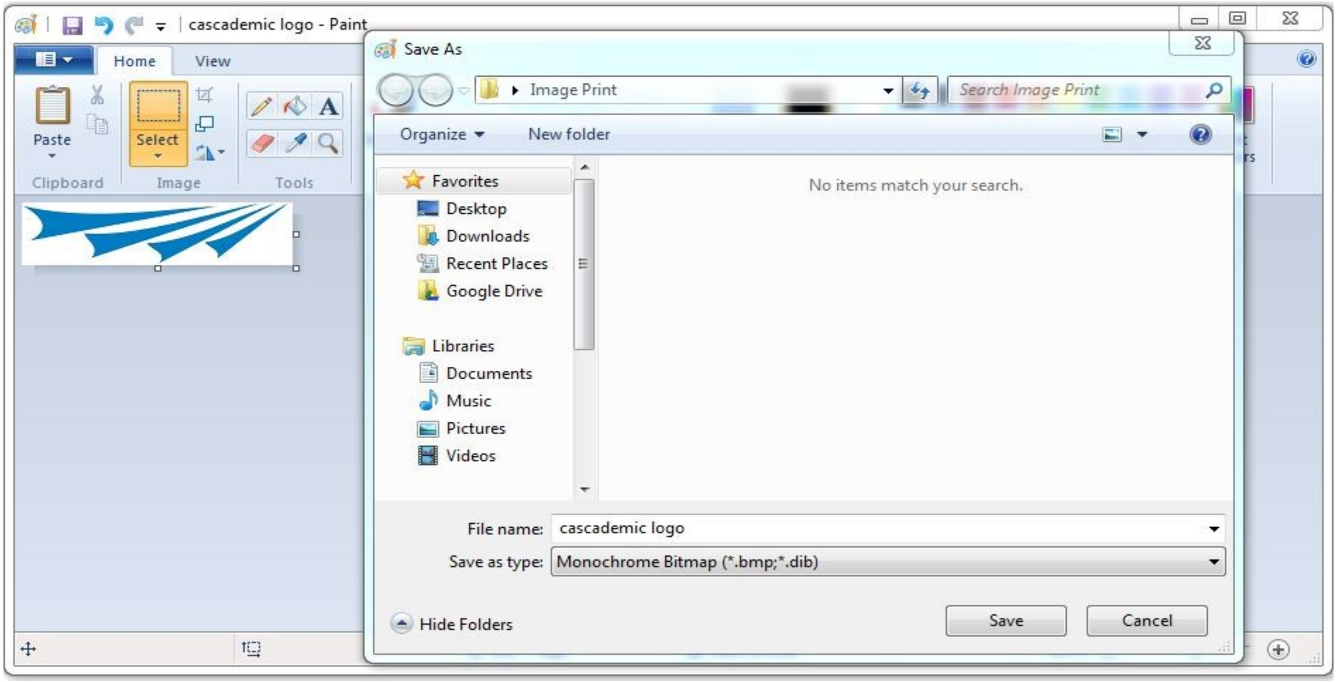
Step 7)

i. Click OK

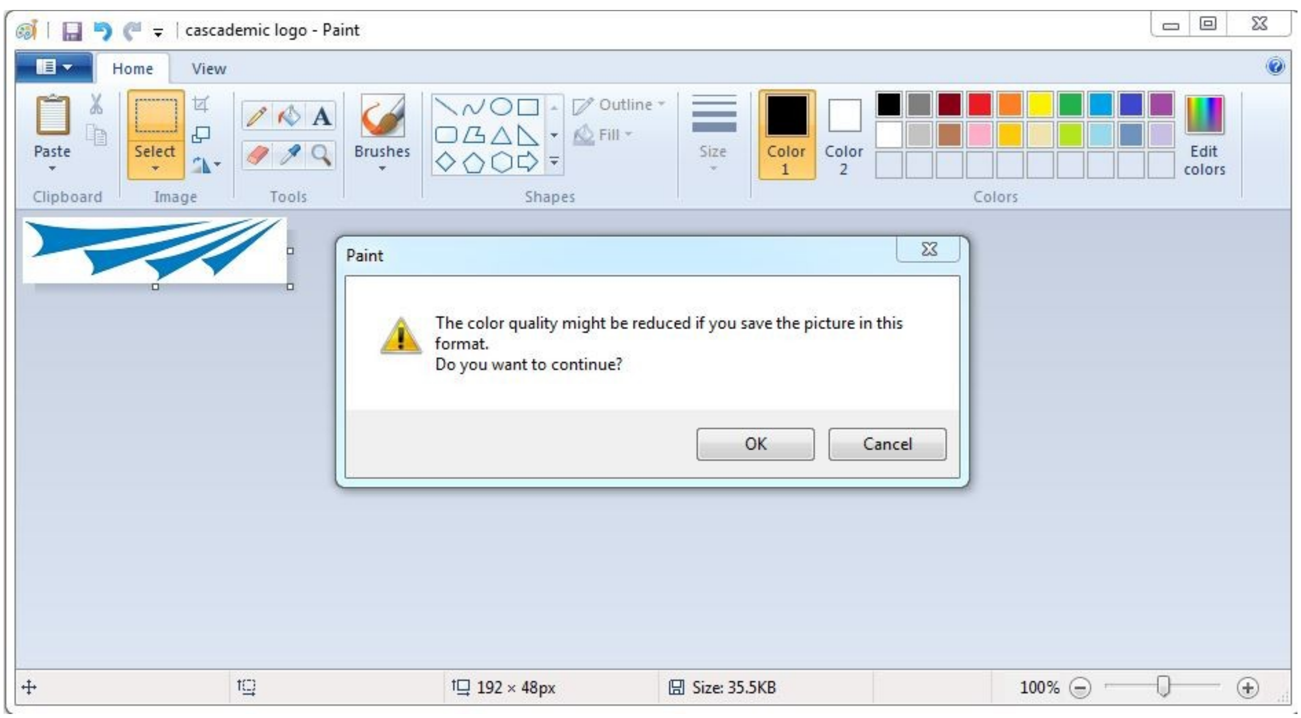
ii. In our example the Width is 192 (equal to 192) and Height is 48(less than or equal to 48) as shown above.



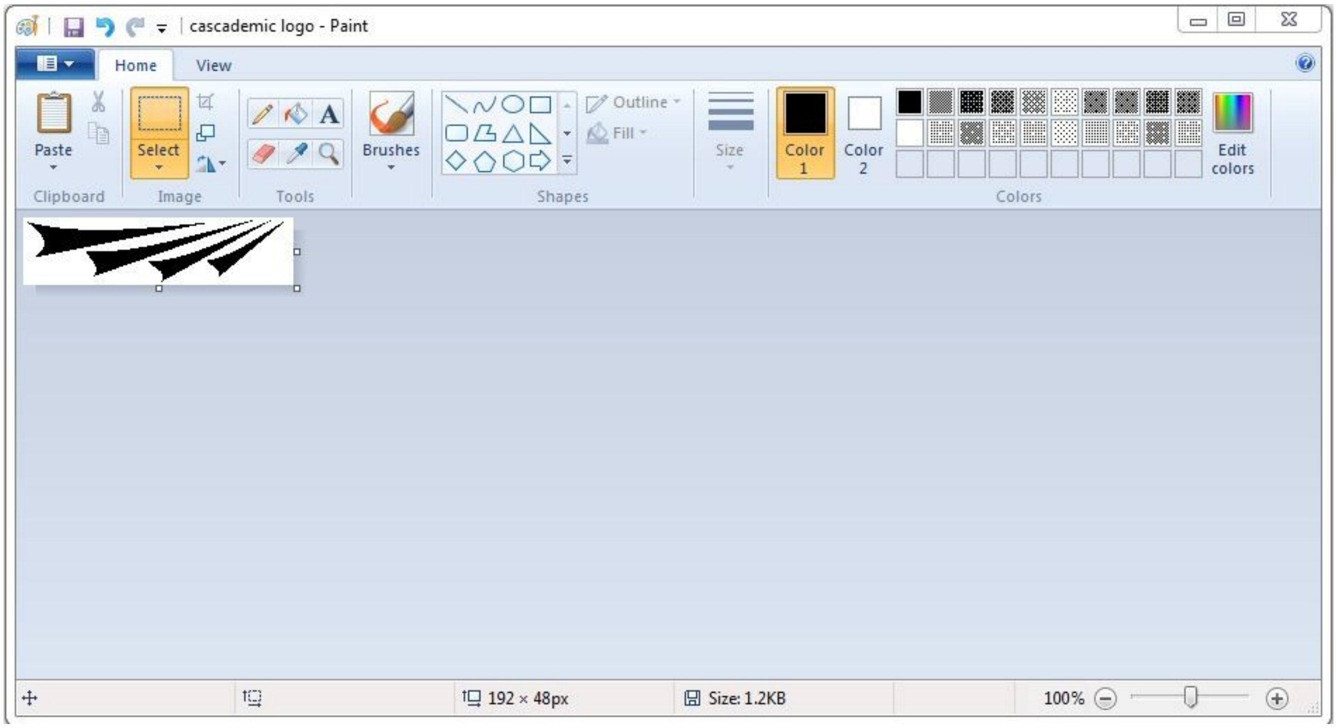
Step 8) Select Save as type “Monochrome Bitmap” and Save the image.



Step 9) Click on OK option, it will ask confirmation for the changes and select yes option, your Image will change to Black and white as shown below.



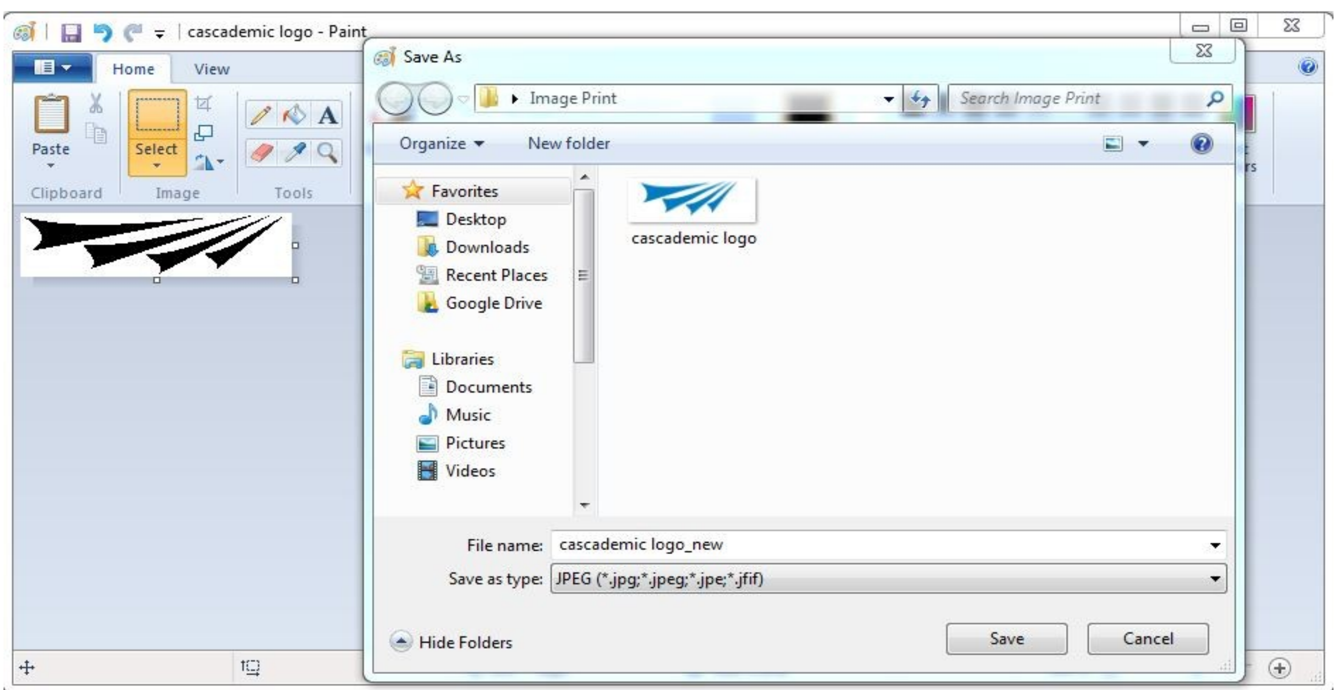
Step 10) Black and white Image.



Step 11)

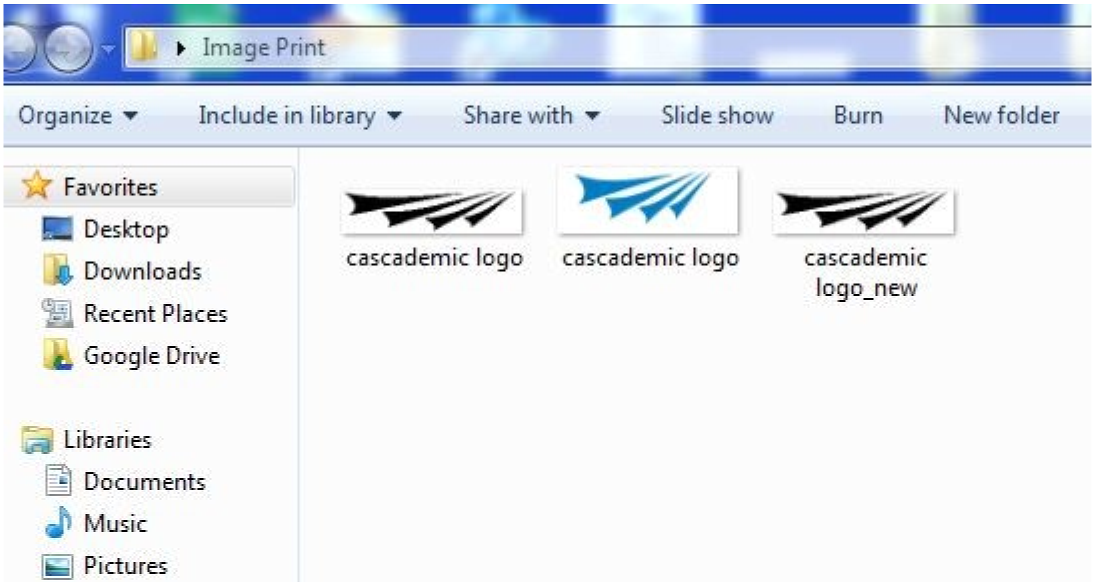
i. Again select Save as type "JPEG"

ii. Change the File Name and Save the image.



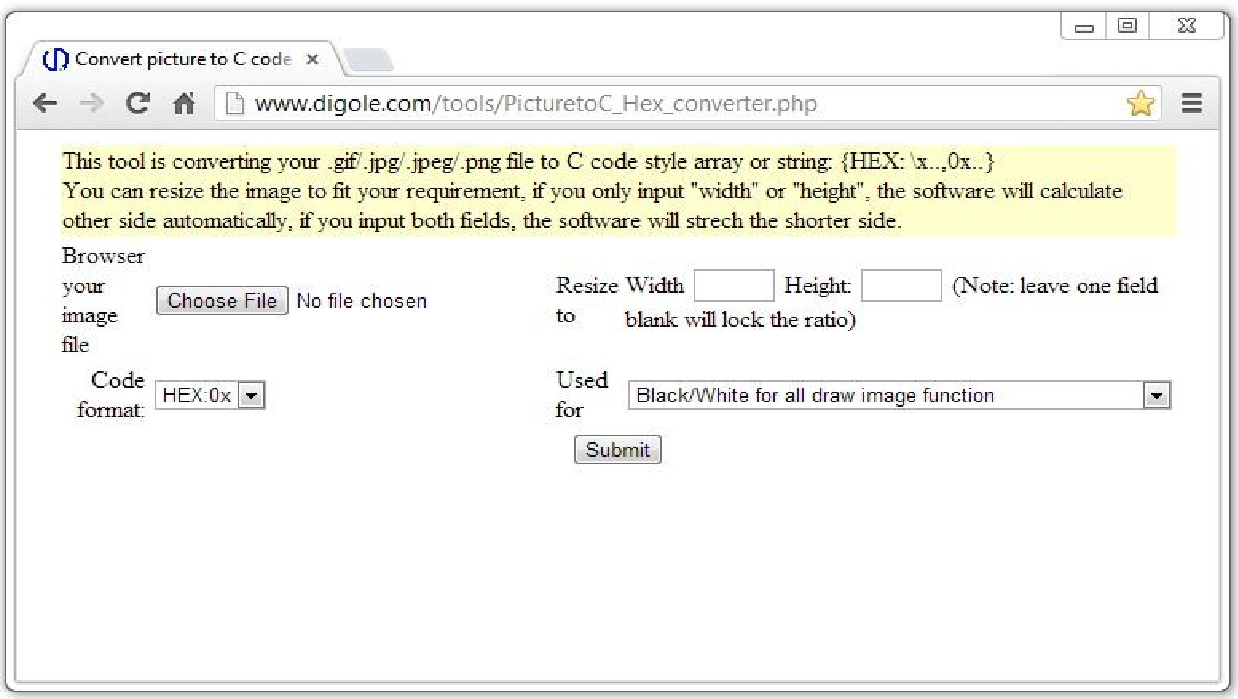
Step 12) From Left Side,

i. Image (1) is bmp image
ii. Image (2) is Original image in JPEG format
iii. Image (3) is Black and White image in JPEG format.



Step 13) Go to the following link

http://www.digole.com/tools/PicturetoC_Hex_converter.php

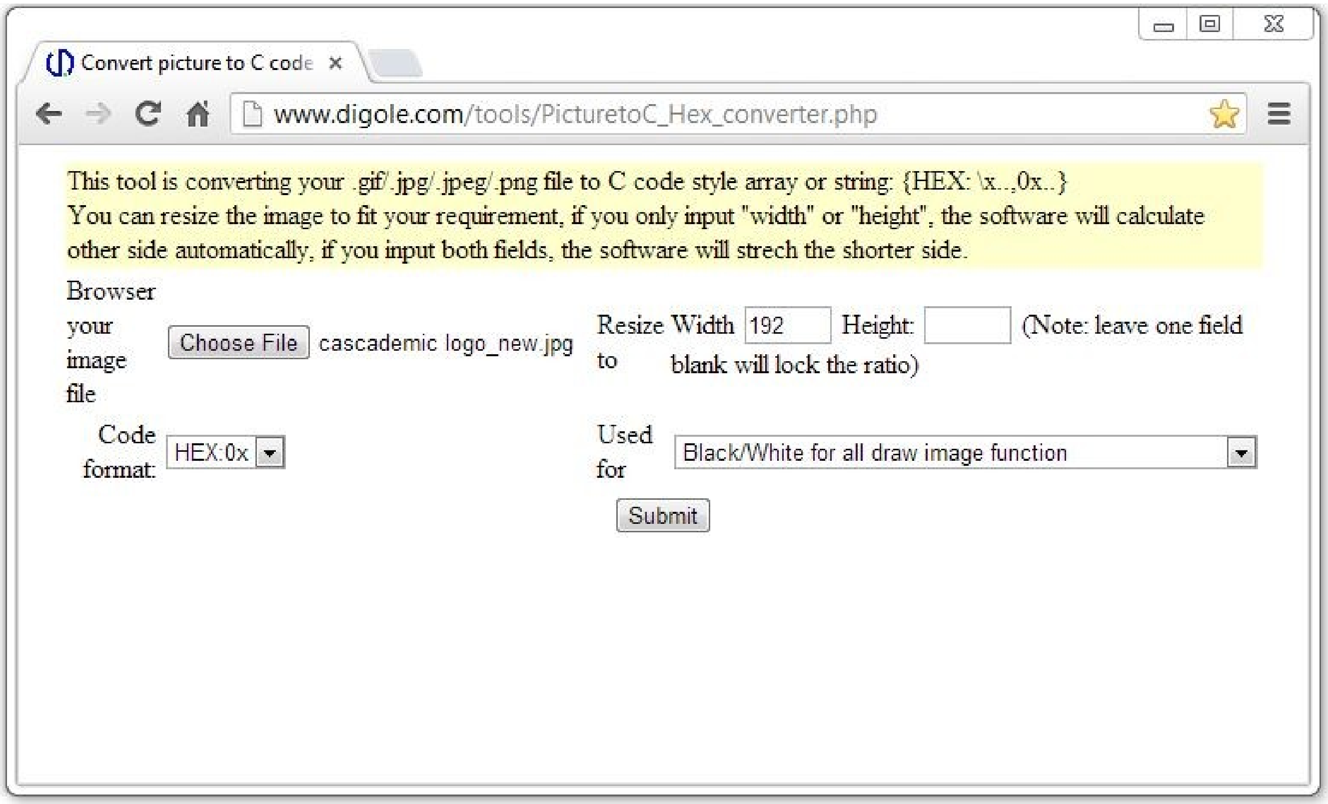


Step 14)

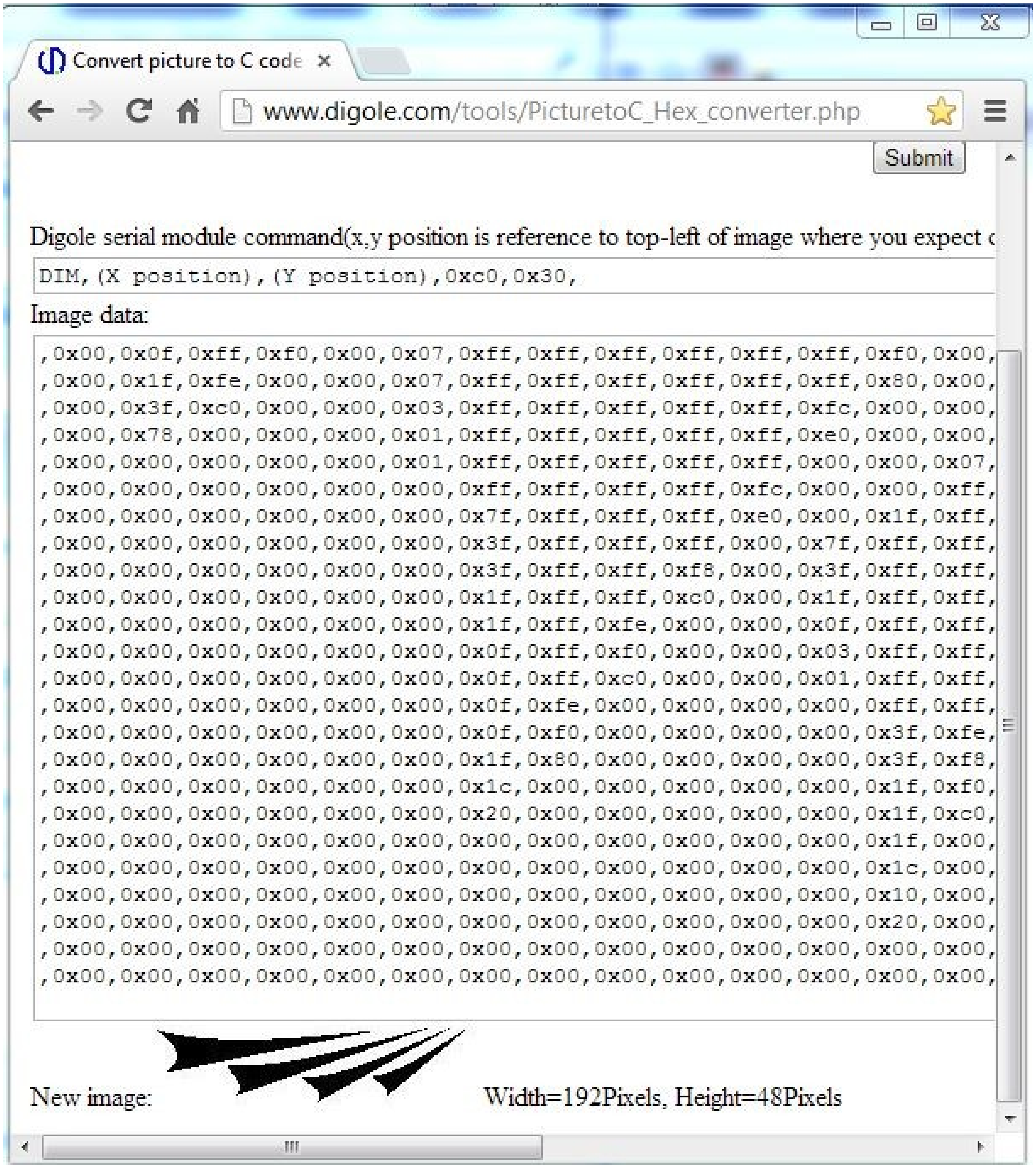
i. Upload image(3)

ii. Enter the value of width of Image(192) in the box of Width

iii. Submit



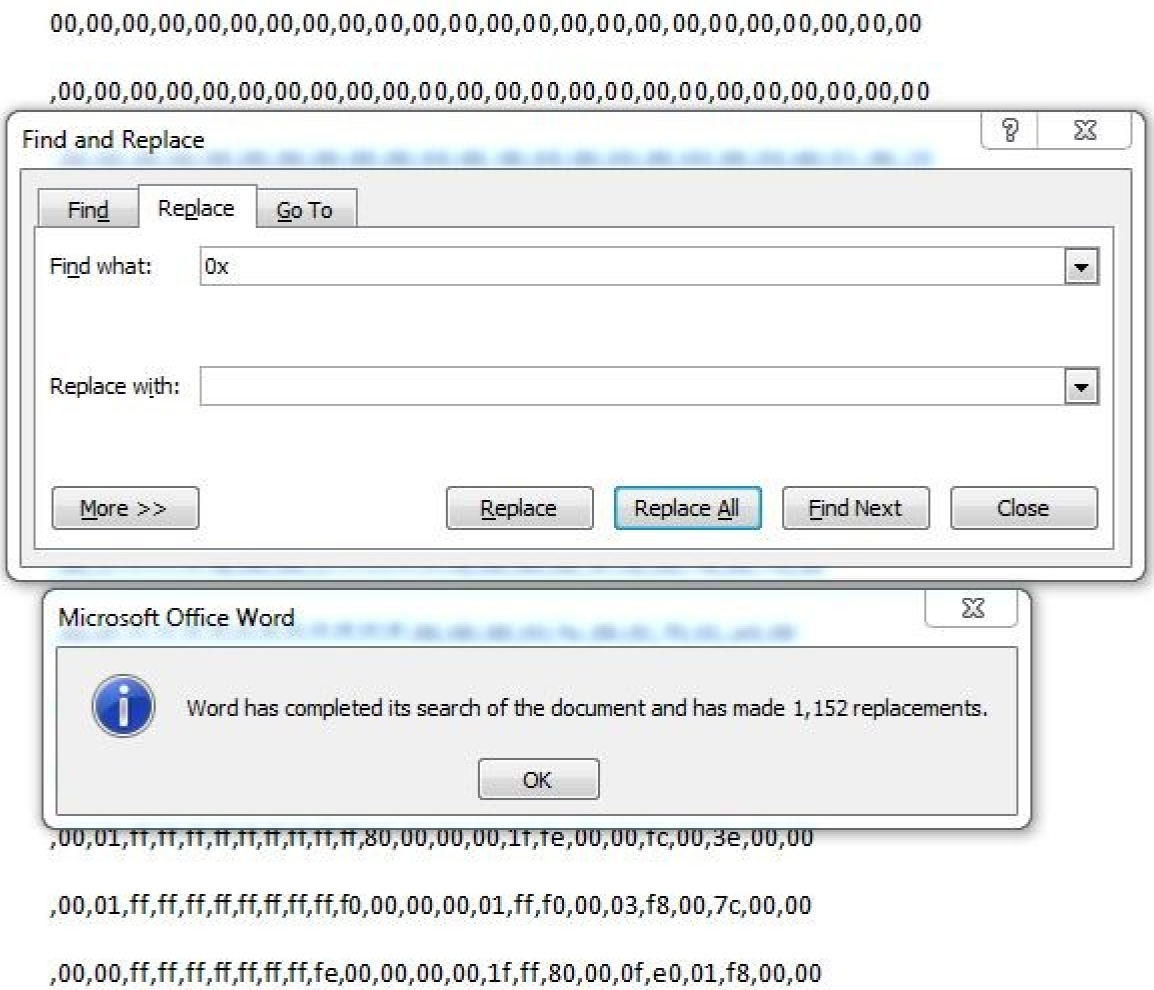
Step 15) Image data in bytes(Hexadecimal Values)



Step 16)

i. Copy the image data and paste in word document

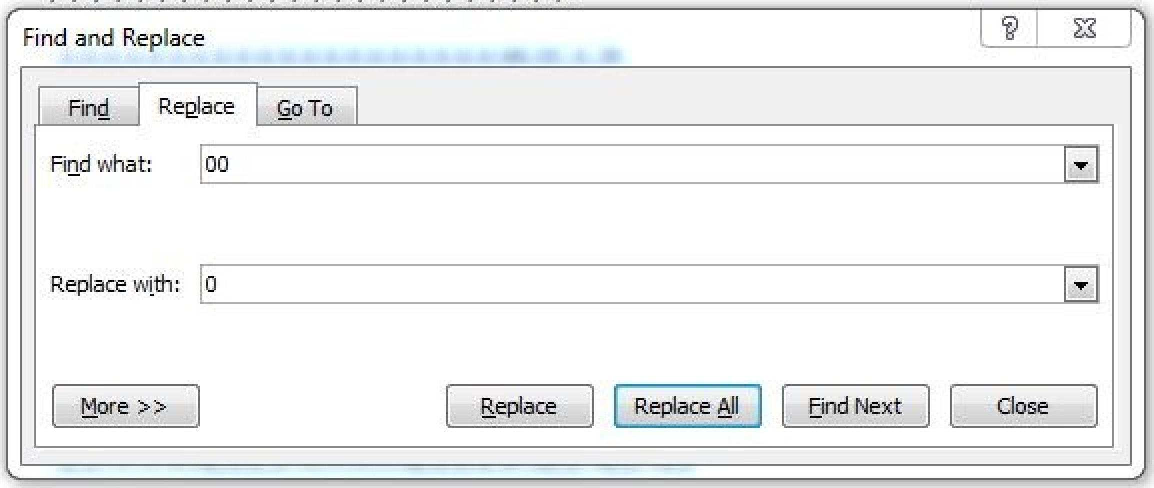
ii. Remove 0x from all bytes



Step 17) Convert from 00 to 0 in all bytes

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

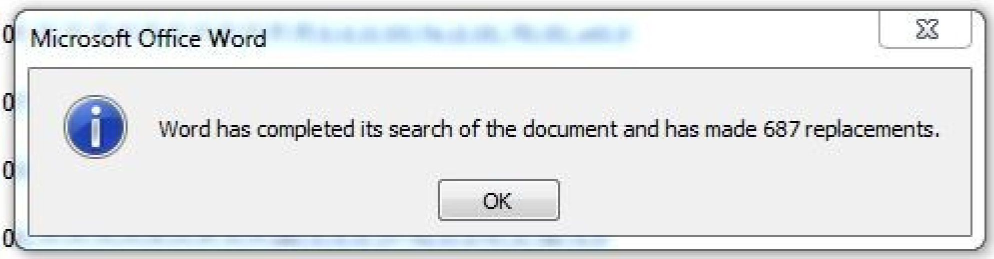


,0,0

,0,0

,0,0

,0,0



,0,01,ff,ff,ff,ff,ff,ff,ff,ff,f0,0,0,0,01,ff,f0,0,03,f8,0,7c,0,0

,0,0,ff,ff,ff,ff,ff,ff,ff,fe,0,0,0,0,1f,ff,80,0,0f,e0,01,f8,0,0

Step 18) Count the number of characters in the remaining text. In the example, the total number of characters is 2768. The total number of words is 48.

```
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,60,01,0,20

,04,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1c,0,0,07,0,06,0,40

,03,c0,0,0,0,0,0,0,0,0,0,0,0,0,0,7f,80,0,0,78,0,18,01,80

,0,ff,0,0,0,0,0,0,0,0,0,0,0,03,ff,e0,0,0,03,c0,0,e0,06,0

,0,7f,fc,0,0,0,0,0,0,0,0,0,1f,ff,fe,0,0,0,3f,0,03,80,0c,0

,0,3f,ff,fc,0,0,0,0,0,0,03,ff,ff,ff,c0,0,0,03,f8,0,0e,0,38,0

,0,1f,ff,ff,ff,f8,0,0,1f,ff,ff,ff,ff,f8,0,0,0,3f,c0,0,78,0,70,0

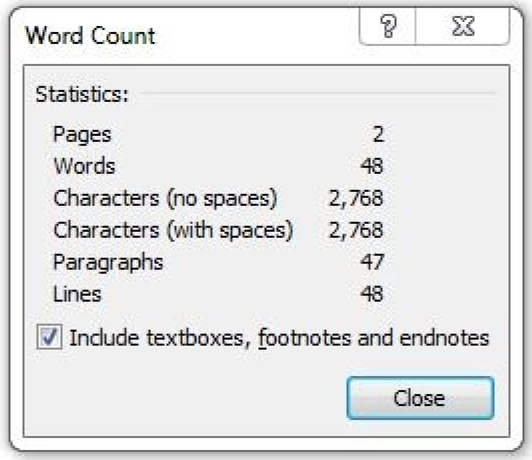
,0,0f,ff,ff,ff,ff,ff,ff,ff,ff,ff,ff,ff,0,0,0,03,fe,0,01,f0,01,e0,0

,0,07,ff,ff,ff,ff,ff,ff,ff,ff,ff,ff,e0,0,0,0,3f,f0,0,07,c0,03,80,0

,0,03,ff,ff,ff,ff,ff,ff,ff,ff,ff,fc,0,0,0,03,ff,80,0,3f,0,0f,0,0

,0,01,ff,ff,ff,ff,ff,ff,ff,ff,ff,80,0,0,0,1f,fe,0,0,fc,0,3e,0,0

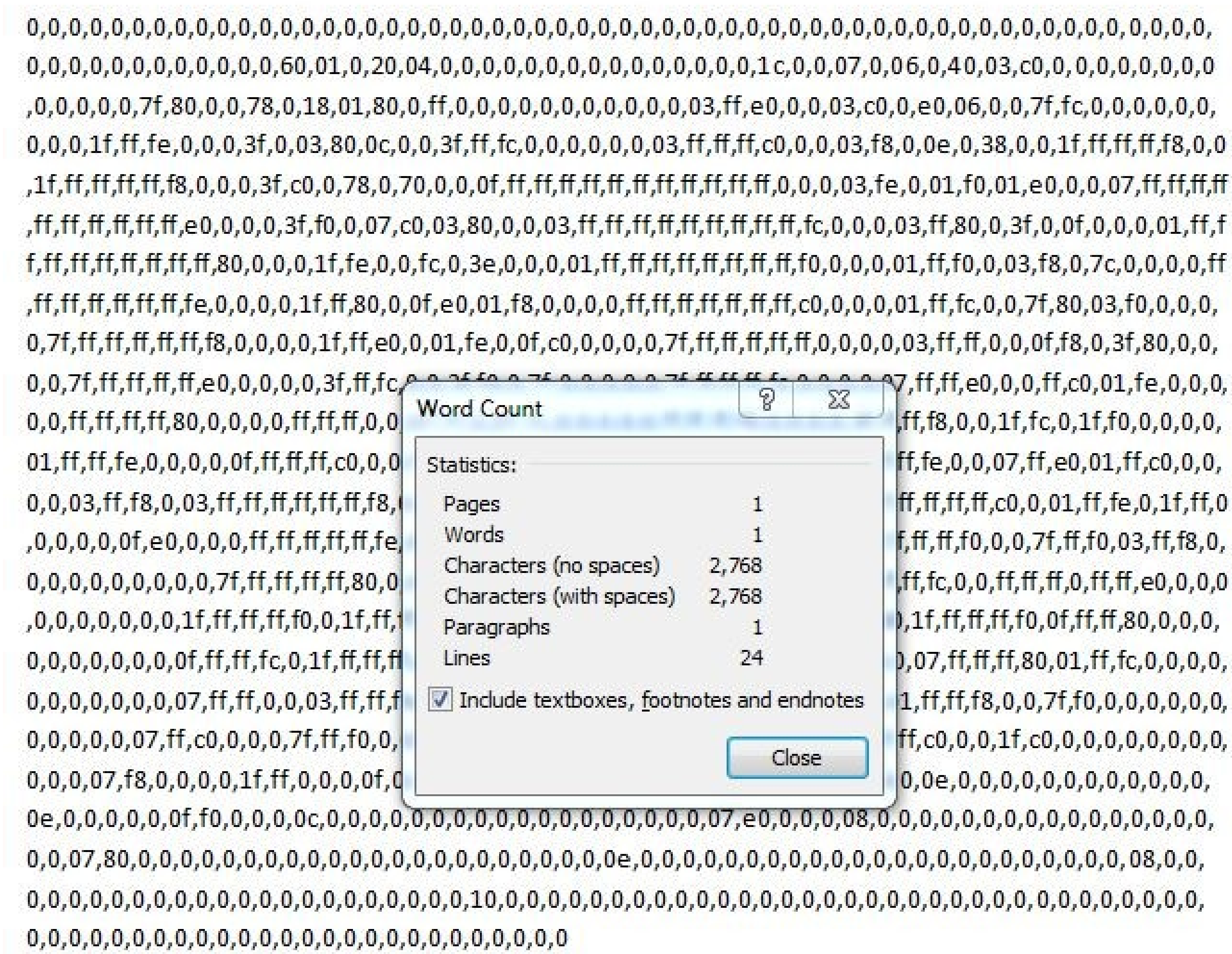
,0,01,ff,ff,ff,ff,ff,ff,ff,ff,f0,0,0,0,01,ff,f0,0,03,f8,0,7c,0,0
```



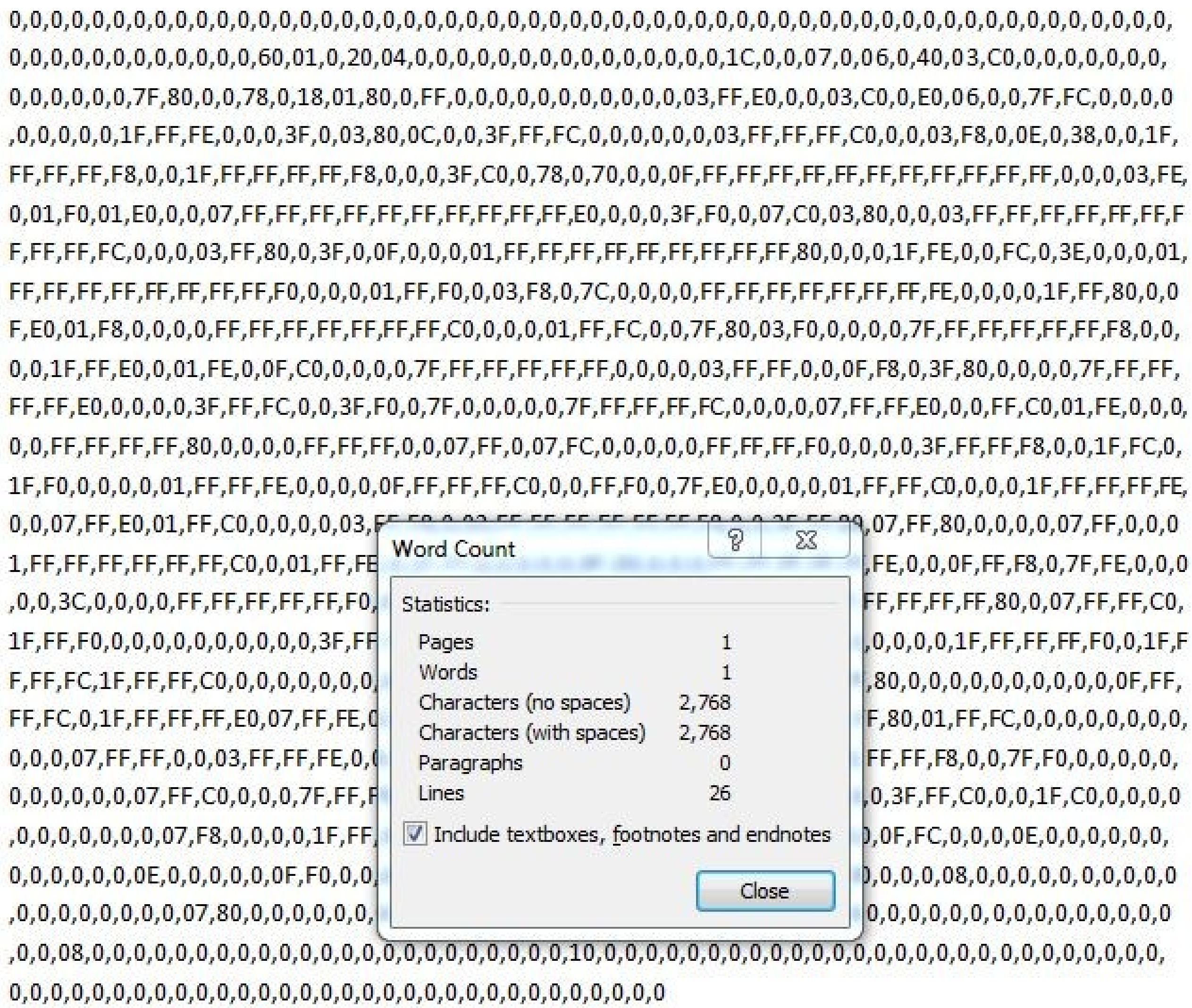
Step 19) Merge all the characters without any space to reduce the number of words to 1. Make sure that the number of characters is not reduced than before.

In the example now, the total number of characters is 2768. The total number of words is 1.

Final Image data should be less than or equal to 3K characters



Step 20) Now convert the lower case characters to upper case. This can be done by pressing "Shift+Caps Lock+F3" twice.


0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,60,01,0,20,04,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1C,0,0,07,0,06,0,40,03,C0,0,0,0,0,0,0,0,
0,0,0,0,0,0,7F,80,0,0,78,0,18,01,80,0,FF,0,0,0,0,0,0,0,0,0,0,0,03,FF,E0,0,0,03,C0,0,E0,06,0,0,7F,FC,0,0,0,0
,0,0,0,0,0,1F,FF,FE,0,0,0,3F,0,03,80,0C,0,0,3F,FF,FC,0,0,0,0,0,0,03,FF,FF,FF,C0,0,0,03,F8,0,0E,0,38,0,0,1F,
FF,FF,FF,F8,0,0,1F,FF,FF,FF,FF,F8,0,0,0,3F,C0,0,78,0,70,0,0,0F,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,0,0,0,03,FE,
0,01,F0,01,E0,0,0,07,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,E0,0,0,0,3F,F0,0,07,C0,03,80,0,0,03,FF,FF,FF,FF,FF,FF,F
F,FF,FF,FC,0,0,0,03,FF,80,0,3F,0,0F,0,0,0,01,FF,FF,FF,FF,FF,FF,FF,FF,FF,80,0,0,0,1F,FE,0,0,FC,0,3E,0,0,0,01,
FF,FF,FF,FF,FF,FF,FF,FF,F0,0,0,0,01,FF,F0,0,03,F8,0,7C,0,0,0,0,FF,FF,FF,FF,FF,FF,FF,FE,0,0,0,0,1F,FF,80,0,0
F,E0,01,F8,0,0,0,0,FF,FF,FF,FF,FF,FF,FF,C0,0,0,0,01,FF,FC,0,0,7F,80,03,F0,0,0,0,0,7F,FF,FF,FF,FF,FF,F8,0,0,
0,0,1F,FF,E0,0,01,FE,0,0F,C0,0,0,0,0,7F,FF,FF,FF,FF,FF,0,0,0,0,03,FF,FF,0,0,0F,F8,0,3F,80,0,0,0,0,7F,FF,FF,
FF,FF,E0,0,0,0,0,3F,FF,FC,0,0,3F,F0,0,7F,0,0,0,0,0,7F,FF,FF,FF,FC,0,0,0,0,07,FF,FF,E0,0,0,FF,C0,01,FE,0,0,0,
0,0,FF,FF,FF,FF,80,0,0,0,0,FF,FF,FF,0,0,07,FF,0,07,FC,0,0,0,0,0,FF,FF,FF,F0,0,0,0,0,3F,FF,FF,F8,0,0,1F,FC,0,
1F,F0,0,0,0,0,01,FF,FF,FE,0,0,0,0,0F,FF,FF,FF,C0,0,0,FF,F0,0,7F,E0,0,0,0,0,01,FF,FF,C0,0,0,0,1F,FF,FF,FF,FE,
0,0,07,FF,E0,01,FF,C0,0,0,0,0,03, ,07,FF,80,0,0,0,0,07,FF,0,0,0
1,FF,FF,FF,FF,FF,FF,C0,0,01,FF,FE ,FE,0,0,0F,FF,F8,0,7F,FE,0,0,0
,0,0,3C,0,0,0,0,FF,FF,FF,FF,FF,F0, FF,FF,FF,FF,80,0,07,FF,FF,C0,
1F,FF,F0,0,0,0,0,0,0,0,0,0,0,3F,FF ,0,0,0,0,1F,FF,FF,FF,F0,0,1F,F
F,FF,FC,1F,FF,FF,C0,0,0,0,0,0,0,0, ,80,0,0,0,0,0,0,0,0,0,0F,FF,
FF,FC,0,1F,FF,FF,FF,E0,07,FF,FE,0 F,80,01,FF,FC,0,0,0,0,0,0,0,0,
0,0,0,07,FF,FF,0,0,03,FF,FF,FE,0,0 FF,FF,F8,0,0,7F,F0,0,0,0,0,0,
0,0,0,0,0,0,07,FF,C0,0,0,0,7F,FF,F ,0,3F,FF,C0,0,0,1F,C0,0,0,0,0
,0,0,0,0,0,0,0,07,F8,0,0,0,0,1F,FF, 0,0F,FC,0,0,0,0E,0,0,0,0,0,0,
0,0,0,0,0,0,0E,0,0,0,0,0,0F,F0,0,0, 0,0,0,0,08,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,07,80,0,0,0,0,0,0, 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,08,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,10,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

Step 21) The printing of this image can be achieved by sending Image print command followed by image data as shown in the below image.

i. Image print command is $1B5E$n<Space>

ii. n is Alignment of Image print

if n = 0, Left Align

if n = 1, Centre Align

if n = 2, Right Align


```
$1B5E$2
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,60,01,0,20,04,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1C,0,0,07,0,06,0,40,03,C0,0,0,0,0,0,0,0,
0,0,0,0,0,0,7F,80,0,0,78,0,18,01,80,0,FF,0,0,0,0,0,0,0,0,0,0,0,03,FF,E0,0,0,03,C0,0,E0,06,0,0,7F,FC,0,0,0,0
,0,0,0,0,0,1F,FF,FE,0,0,0,3F,0,03,80,0C,0,0,3F,FF,FC,0,0,0,0,0,0,03,FF,FF,FF,C0,0,0,03,F8,0,0E,0,38,0,0,1F,
FF,FF,FF,F8,0,0,1F,FF,FF,FF,FF,F8,0,0,0,3F,C0,0,78,0,70,0,0,0F,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,0,0,0,03,FE,
0,01,F0,01,E0,0,0,07,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,E0,0,0,0,3F,F0,0,07,C0,03,80,0,0,03,FF,FF,FF,FF,FF,FF,F
F,FF,FF,FC,0,0,0,03,FF,80,0,3F,0,0F,0,0,0,01,FF,FF,FF,FF,FF,FF,FF,FF,FF,80,0,0,0,1F,FE,0,0,FC,0,3E,0,0,0,01,
FF,FF,FF,FF,FF,FF,FF,FF,F0,0,0,0,01,FF,F0,0,03,F8,0,7C,0,0,0,0,FF,FF,FF,FF,FF,FF,FF,FE,0,0,0,0,1F,FF,80,0,0
F,E0,01,F8,0,0,0,0,FF,FF,FF,FF,FF,FF,FF,C0,0,0,0,01,FF,FC,0,0,7F,80,03,F0,0,0,0,0,7F,FF,FF,FF,FF,FF,F8,0,0,
0,0,1F,FF,E0,0,01,FE,0,0F,C0,0,0,0,0,7F,FF,FF,FF,FF,FF,0,0,0,0,03,FF,FF,0,0,0F,F8,0,3F,80,0,0,0,0,7F,FF,FF,
FF,FF,E0,0,0,0,0,3F,FF,FC,0,0,3F,F0,0,7F,0,0,0,0,0,7F,FF,FF,FF,FC,0,0,0,0,07,FF,FF,E0,0,0,FF,C0,01,FE,0,0,0,
0,0,FF,FF,FF,FF,80,0,0,0,0,FF,FF,FF,0,0,07,FF,0,07,FC,0,0,0,0,0,FF,FF,FF,F0,0,0,0,0,3F,FF,FF,F8,0,0,1F,FC,0,
1F,F0,0,0,0,0,01,FF,FF,FE,0,0,0,0,0F,FF,FF,FF,C0,0,0,FF,F0,0,7F,E0,0,0,0,0,01,FF,FF,C0,0,0,0,1F,FF,FF,FF,FE,
0,0,07,FF,E0,01,FF,C0,0,0,0,0,03,FF,F8,0,03,FF,FF,FF,FF,FF,FF,F8,0,0,3F,FF,80,07,FF,80,0,0,0,0,07,FF,0,0,0
1,FF,FF,FF,FF,FF,FF,C0,0,01,FF,FE,0,1F,FF,0,0,0,0,0,0F,E0,0,0,0,FF,FF,FF,FF,FF,FE,0,0,0F,FF,F8,0,7F,FE,0,0,0
,0,0,3C,0,0,0,0,FF,FF,FF,FF,FF,F0,0,0,7F,FF,F0,03,FF,F8,0,0,0,0,0,0,0,0,0,0,7F,FF,FF,FF,FF,80,0,07,FF,FF,C0,
1F,FF,F0,0,0,0,0,0,0,0,0,0,0,3F,FF,FF,FF,FC,0,0,FF,FF,FF,0,FF,FF,E0,0,0,0,0,0,0,0,0,0,0,1F,FF,FF,FF,F0,0,1F,F
F,FF,FC,1F,FF,FF,C0,0,0,0,0,0,0,0,0,0,0,0F,FF,FF,FF,80,1F,FF,FF,FF,F0,0F,FF,FF,80,0,0,0,0,0,0,0,0,0,0,0F,FF,
FF,FC,0,1F,FF,FF,FF,E0,07,FF,FE,0,0,0,0,0,0,0,0,0,0,0,07,FF,FF,E0,0,07,FF,FF,FF,80,01,FF,FC,0,0,0,0,0,0,0,0,
0,0,0,07,FF,FF,0,0,03,FF,FF,FE,0,0,FF,F8,0,0,0,0,0,0,0,0,0,0,0,0,07,FF,F8,0,0,01,FF,FF,F8,0,0,7F,F0,0,0,0,0,0,
0,0,0,0,0,0,07,FF,C0,0,0,0,7F,FF,F0,0,0,1F,E0,0,0,0,0,0,0,0,0,0,0,0,0,07,FF,0,0,0,0,3F,FF,C0,0,0,1F,C0,0,0,0,0
,0,0,0,0,0,0,0,07,F8,0,0,0,0,1F,FF,0,0,0,0F,0,0,0,0,0,0,0,0,0,0,0,0,0,07,C0,0,0,0,0,0F,FC,0,0,0,0E,0,0,0,0,0,0,
0,0,0,0,0,0,0E,0,0,0,0,0,0F,F0,0,0,0,0C,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,07,E0,0,0,0,08,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,07,80,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0E,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,08,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,10,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
```

4.12. TO PRINT TEST PAGE:

Press Switch SW3 to print test page.

4.13. TO PAPER FEED:

Press Switch SW5 to feed the paper for 5cm.

Note:

1. All commands should start from the beginning of the line.
2. But line feed command ($0A) can be used anywhere in the text.
3. Every command should be followed by a single space then text.

5. HANDLING PRECAUTIONS

The following are examples of issues arising in the printer:
(1) Poor printing quality due to low thermal sensitivity
(2) Abrasion of the thermal head due to the thermal paper surface roughness
(3) Printing stuck and unusual noise due to sticking the thermal layer of the thermal paper to the thermal head
(4) Printing fades due to low preservability of the thermal paper
(5) Electrolytic corrosion of the thermal head due to inferior paper

The precautions to be taken are:

1. Do not leave the printer on for a long period of time, the platen could be deformed and resulted in print quality deteriorated. In this case, feed the thermal paper for a while to recover deformation of the platen. If the thermal head is remained in contact with the platen without thermal paper for a long time, the platen and the thermal head may be stuck together and cause paper feed difficulty. If facing this problem, release the platen unit, and set it back again before starting printing.
2. Never loosen the screws that fasten respective parts of the printer. Loosened screws may reduce the efficiency of the performance of the printer mechanism.
3. Do not release the platen unit during printing; otherwise this may reduce the efficiency of the printer and may cause damage.
4. Do not apply stress to the platen unit during printing. The print defect may occur.
5. When setting the platen unit, the reduction gear may interfere with the platen gear and may cause the platen unit to not be set. In such a case, release the platen unit and set it again.
6. Never pull out the thermal paper while the platen unit is set. The printer mechanism may become damaged.
7. When handling the printer, make sure to use antistatic clothing and to ground yourself to prevent the electronic parts such as thermal head, out-of-paper sensor, motor, and platen detection switch from damaged by static electricity. Especially take care of the thermal head heat element and the connecting terminal.
8. Do not hit or scratch the surface of the thermal head with any sharp or hard object. This could damage the thermal head.
9. When printing at a high print ratio in a low temperature or high humidity environment, the vapor from the thermal paper during printing may cause condensation to form on the printer and soil the thermal paper itself. Prevent the thermal head from a drop of water. It may cause electrolytic corrosion of the thermal head. If condensed, do not activate electricity until dried.
10. Connect or disconnect the connecting terminal after turn off the power.
11. Do not apply stress to the FPC while connecting and disconnecting them. Otherwise the FPC may become damaged.

12. Warn users not to pull the thermal paper and not to change the paper eject angle during printing. Otherwise, the paper jam or the cut failure may occur.
13. In order to prevent the electronic parts such as thermal head, out-of-paper sensor, motor, and platen detection switch from damage and to avoid the print defect, warn users not to touch the thermal head and the sensor directly when handling the printer like replacing the thermal paper.
14. Do not use the paper roll with glued end or folded end. In case of using such paper roll, replace to a new one before the end of the paper roll is shown up.
15. The printer is not waterproof and drip proof. Prevent contact with water and do not operate with wet hands as it may damage the printer or may cause a short circuit or fire.
16. The printer is not dust proof. Never use the printer in a dusty place, as it may damage the thermal head and paper drive system.

6. HANDLING METHOD

6.1 INSTALLING/UNINSTALLING THE THERMAL PAPER

6.1.1. PROCEDURES FOR INSTALLING/UNINSTALLING THERMAL PAPER

Procedures for installing the thermal paper by the easy operation (setting and releasing the platen block)

1. Installing the thermal paper
   - Install the thermal paper with the platen unit released.
   - Set the thermal paper straight to the printer and set the thermal paper until its edge is ejected for 5 cm and more from the top surface of the printer mechanism.
2. Uninstall the thermal paper
   - Uninstall the thermal paper in the same manner for installing the thermal paper.
3. Clearing a paper jam
   - Uninstall the thermal paper in the same manner for installing the thermal paper.

6.1.2. PRECAUTIONS FOR INSTALLING/UNINSTALLING THERMAL PAPER

1. Install the thermal paper with the platen unit released. Auto-loading is not allowed.
2. Set the thermal paper straight to the printer and set the thermal paper until its edge is ejected for 5 cm and more from the top surface of the printer mechanism.
3. When setting the platen unit, the reduction gear may interfere with the platen gear and may cause the platen unit to not be set. In such a case, release the platen unit and set it again.
4. If the thermal paper is skewed, feed the thermal paper until the thermal paper becomes straight or install the thermal paper again.
5. Remove the jamming paper with the platen unit released. Do not pull the thermal paper by force because severe damages may occur.
6. If the thermal head is remained in contact with the platen without the thermal paper for a long time, the platen and the thermal head may be stuck together and cause the auto-loading difficulty. If facing this problem, release the platen block and set it back again before starting printing.